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AUTHOR Ludlow, H. Glenn; And Others
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ABSTRACT

A study was conducted (follow-up to SP 004 600) of the 1,186 recipients of the Ed.D. and Ph.D. degrees in education in the United States in 1958. Questionnaire data was collected to investigate 5-year career development and job satisfaction plus ability and achievement (as measured by high school graduating class rank, intelligence test scores, and mathematics-science GPA). Conclusions were drawn from findings related to 13 specific questions: Concern over superiority of one degree or the other is not fully warranted. The imagined superiority of doctoral incumbants in certain types of positions within the profession is questionable. Certain types of employing organizations and certain types of colleges do not necessarily attract graduates with greater ability or achievement. Speculation as to superiority of those in certain major subject areas is not entirely supported. Areas outside education attract only 5 percent of the degree holders, the majority seeking employment in a college or university. The group is quite mobile and generally satisfied with economic, position, and achievement conditions. Recipients devote much time to administration as contrasted with teaching, counseling, and research. Degree holders enjoy considerably higher earning power than is often thought. The doctorate has been very influential in enhancement of status role. (Complete findings are included. Related documents are SP 004 599-SP 004 602, and ED 010 188.) (JS)

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THE DOCTORATE IN EDUCATION

A Further Investigation of Persons Receiving The Doctorate in The Field of Education in the United States for the Year 1958: Their Abilities, Professional Motivations and Job Satisfactions

VOLUME IV — FOLLOW-UP STUDY

prepared for

The Committee on Studies
and
The Subcommittee on Faculty Personnel
of
The American Association of Colleges for Teacher Education

by

H. Glenn Ludlow
John A. Sanderson
Richard C. Pugh
at
Indiana University

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PREFACE

The original Subcommittee on Faculty Personnel, established in 1956, by the Committee on Studies of the American Association of Colleges for Teacher Education, completed its Study of the Doctorate in Education in 1960. Following the conference, which was held in May of that year to discuss the findings of the study, various recommendations for continued investigation were made. In February, 1961, a new Faculty Personnel Subcommittee was established. Among the several committee activities discussed was the desire to carry out some sort of follow-up study of all or part of the original sample of doctoral recipients surveyed in Volume I of the three-volume series of The Doctorate In Education. The present report thus represents the results of that interest and effort. This study involves two major components:

(1) an analysis of questionnaire data dealing with the five-year career development of the "class of '58" and

(2) a study of the 1958 doctoral recipients on the basis of three measured abilities; namely, I.Q., Mathematics-Science GPA, and Rank in High School Graduating Class.

We are especially indebted to Lindsey R. Harmon, Director of Research, Office of Scientific Personnel of the National Academy of Sciences, for the data and advice on the analysis in the second segment of the total follow-up investigation. John A. Sanderson who was a graduate assistant in the Bureau of Educational Studies and Testing at Indiana University, developed the questionnaire, summarized the data, and wrote the original report. Richard C. Pugh, research assistant in the Bureau, modified and rewrote a substantial portion of the first draft. All aspects of the investigation were carried forward under the general direction of H. Glenn Ludlow.

Members of the Subcommittee provided valuable support and suggestions at all stages of the study. The following committee members were involved in the investigation:

J. Marlowe Slater	Director of the Office of Teacher Placement, University of Illinois, Urbana
Robert G. Bone	President, Illinois State University at Normal, Normal
Ralph W. Cherry	Dean, School of Education, University of Virginia, Charlottesville
John H. Fischer	President, Teachers College, Columbia University, New York, N. Y.
Willard C. Olson (Liaison member representing Committee on Studies)	Dean, School of Education, The University of Michigan, Ann Arbor
H. Glenn Ludlow	Director, Division of Social Foundations and Human Behavior, School of Education, Indiana University, Bloomington

Further assistance was provided during various phases of the study by the staff of the central office of AACTE: Edward C. Pomeroy, Executive Secretary; H. Kenneth Barker, Associate Executive Secretary; and especially by Richard E. Lawrence, Associate Secretary for Research and Studies. Also, Ralph A. Forsythe and his staff at the University of Denver, Denver, Colorado, were extremely helpful in the collation of the original study data with part of the data collected and processed for this study.

An expression of real gratitude is due to the 731 members of the doctoral "class of '58" who cooperated by giving their thoughtful responses in the questionnaire aspect of the research. Finally, much credit for the design and execution of this study is due the able Subcommittee chairman, J. Marlowe Slater.

H. Glenn Ludlow

INDIANA UNIVERSITY

Bloomington, Indiana
January, 1964

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Chapter I

INTRODUCTION

BACKGROUND OF THE PROBLEM

During the past seven years, the American Association of Colleges for Teacher Education, through its Committee on Studies, and in particular, the Subcommittee on Faculty Personnel, has assembled, examined, and presented for consideration a multiplicity of facts concerning the doctorate in education. The results of these extensive studies were published by the AACTE in two volumes early in 1960. The Graduates, [1] was prepared by Laurence D. Brown and Marlowe Slater of the University of Illinois. The Institutions, [2] was prepared by Harold E. Moore, John H. Russel, and Donald G. Ferguson at the University of Denver. Following the publication of the above two volumes, a conference on The Doctorate in Education, sponsored by the AACTE with financial assistance from the Carnegie Corporation, was held May, 1960, in Chicago. The conference discussions, addresses, and reports were published in Conference Report, [3] edited by Wilbur Yauch.

The AACTE, by charter an autonomous department of the National Education Association, is a national, voluntary association of colleges and universities organized to improve the quality of institutional programs of teacher education. All types of four-year institutions for higher education are represented in the present membership. These previously listed publications reflect the basic concern of AACTE institutions for the source of future professional leaders. Further, these volumes were designed to provide assistance in the analysis of the difficult problem of how to increase the supply of well-qualified teacher education faculty.

For the most part this current study is concerned with Volume I, The Graduates. Of the 92 institutions granting the doctorate in education during the period covered by the original AACTE Study (September, 1956 to September, 1958), only one refused to participate. The lists of names of graduates from the 91 participating institutions totaled 3,375 individuals. The number of usable responses for the Subcommittee inquiry was 2,542. This was the original AACTE sample. The Ed.D. was awarded to 1,677 of these individuals and the Ph.D. to 865 or approximately a two-to-one ratio in favor of the Ed.D. Recipients of the doctorate in education during the two-year period, 1956-1958, represent about 18 per cent, [4] of the total number of individuals receiving doctorates in all fields in the United States during that time.

The method of studying this sample in Volume I, The Graduates, was the questionnaire. One portion of the questionnaire consisted of a series of items requesting such objective information as personal data, employment and educational background, dates, and costs. The remainder of the questionnaire consisted of semistructured-type items designed to obtain perceptions and attitudes of the individuals relative to certain factors and conditions attending the pursuit of the doctorate.

Tabulation and analysis of the data were followed by the presentation of The Graduates. This interesting volume provided many related assumptions and hypotheses which undergird this current investigation. But most important was the AACTE sample which was used in the previous investigation.

The other significant feature of the background for this research relates to a study of the personnel of the National Academy of Sciences – National Research Council, under the leadership of Lindsey R. Harmon, Director of Research. In an article entitled "High School Background of Science Doctorates," Science, March, 1961 [5] Dr. Harmon presents from survey data the influence of class size and region of origin, as well as ability, in Ph.D. production. The aim of this research was to shed some light on the question of Ph.D. production through examination of the high school backgrounds of a representative sample of recent science doctorates; specifically, the entire 1958 crop of doctorates from American universities.

In the Harmon Study, a questionnaire was prepared for each holder of a 1958 doctorate and mailed to his former high school. The number of responses to this questionnaire was most gratifying, particularly

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1/ Brown, Laurence, and Slater, J. Marlowe. Volume I - The Graduates, The Doctorate in Education. American Association of Colleges for Teacher Education, Washington, D.C.: the Association, 1960. 110 pp.

2/ Moore, Harold; Russel, J.H.; and Ferguson, Donald. Volume II - The Institutions, The Doctorate in Education. American Association of Colleges for Teacher Education, Washington, D.C.: the Association, 1960, 94 pp.

3/ Yauch, Wilbur. Volume III - Conference Report, The Doctorate in Education. The American Association of Colleges for Teacher Education, Washington, D.C.: the Association, 1961. 150 pp.

4/ Moore, et al, op. cit., p. 14.

5/ Harmon, Lindsey, "High School Background of Science Doctorates." Science 133:679-688; March, 1961.

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as it indicates that any bias due to nonresponse was small indeed. In 1958, there were 8,930 doctoral degrees awarded. Of this total, approximately 13.3 per cent went to people who had graduated from foreign high schools. This left 7,743 persons who had graduated from American high schools. From this population, information concerning high school records was received from 7,063 or about 91 per cent. This per cent of return is phenomenal, considering the factors involved, and surely represents a milestone in response rate. The data obtained from the high school records were: (1) intelligence test scores, (2) mathematics-science grade-point average, and (3) rank in graduating class.

The intelligence scores were averaged and converted to Army Standard Scale Values, with a mean of 100 and a standard deviation of 20. The high school class rank, in its original percentile form, was unsatisfactory for computational purposes because the centile rank is not a constant unit of measurement. Thus, centiles were transmuted to standard scores, assuming a normal distribution of class ranks. The mathematics-science GPA's were computed in the following manner: a grade of C was set equal to 50, a grade of B to 70, and a grade of A to 90.

With these indices, comparisons were made between fields of study, geographic regions, and size of graduating class. These comparisons have been vital in clarifying many of the past questions raised on major fields of study and measured ability of doctoral graduates.

It is from these two sources that this follow-up study has arisen. Obviously, the nature of the designs and samples of both the previous AACTE investigation and the Harmon Study were influential in charting the course for the present research study.

STATEMENT OF THE PROBLEM

The present study has as its chief purpose the examination of certain abilities, career motivations and job satisfactions of doctoral recipients in education. Specifically, this study sought to answer certain questions in respect to the doctoral graduates in the field of education during the year 1958.

Based on these considerations, then, with particular attention to measured abilities and professional careers for the past five years, the following questions were posed:

1. Do the 1958 recipients of Ph.D.'s and Ed.D.'s in education differ significantly in respect to: (a) intelligence test scores, (b) normalized rank in high school graduating class, and (c) mathematics-science GPA (high school)?

2. Are certain types of institutions (according to classification of institutions, pages 1 and 2, 1960-1961, "Education Directory, Part 3, Higher Education")[6] employing those 1958 education doctorates with significantly higher (a) intelligence test scores, (b) rank in high school graduating class, and (c) mathematics-science GPA? For purposes of analysis, employing institutions were compared by highest level of classification and type of program (levels I-V, page 1, and types a-k, page 2, "Directory").

3. Are there significant differences among the 1958 education doctoral recipients in the 15 major areas in respect to: I.Q., rank in high school class, and mathematics-science GPA?

4. Does one find that the 1958 doctoral recipients with higher I.Q. scores, rank in high school class, and mathematics-science GPA's are moving into certain: (a) types of positions, and (b) types of organizations?

5. Are the 1958 graduates working within the profession of education in 1963?

6. Do the recipients rely upon frequent job relocations to satisfy their career motivations and aspirations?

7. Do the 1958 recipients plan to stay within their present position or are their aspirations toward areas other than their present positions?

8. How many promotions within the ranks have been received since 1958?

9. From a professional standpoint, in what type of activity does one find the group engaged? How do the recipients spend their time while on the job?

10. Are the recipients satisfied with their present career roles?

11. Is there evidence that the doctoral recipients have taken an active part in publication of professional manuscripts?

12. What is the salary range of the group in 1963?

13. What noticeable changes have come about in status role as a result of doctoral training?

LIMITATIONS OF THE PROBLEM

The present study contains the following limitations:

6/ U.S. Department of Health, Education and Welfare, Office of Education. Education Directory, 1960-61. Washington, D.C.: Government Printing Office, 1960. Part 3, "Higher Education," pp. 1-2.

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1. Only the 1958 doctoral recipients in education in the United States were studied.

2. There is little consideration given to the graduating institutions and their programs of advanced graduate study leading to the doctor's degree.

3. The criteria from which measures of ability were derived, were obtained from high school records.

4. The sample dealing with the three criteria of ability consisted of all those recipients who were common to both the earlier AACTE Study and the Harmon Study. Also, a further restriction was encountered due to receipt of incomplete data from one or both of the previous studies for some individuals.

5. The sample dealing with career motivations and satisfactions consisted of as many of the original AACTE sample as could be contacted in 1963.

6. This study is directed toward the doctorate in the field of education and will naturally be of primary interest to those concerned with staffing teacher education programs.

7. The factors of career motivation and job satisfaction were dealt with through the questionnaire technique which is a purely introspective form of measurement. However, it was the only feasible method appropriate for a sample of this magnitude.

DEFINITION OF TERMS

In order to clarify the research design and to give aid in the interpretation of the findings and conclusions, certain terms need to be operationally defined. The following terms are defined for purposes of this research:

1. Original AACTE Study Population - All recipients of doctoral degrees in the field of education from September, 1956, to September, 1958, in the United States.

2. Harmon Study Population - All recipients of doctoral degrees in the United States during 1958.

3. Original AACTE Study Sample - The doctoral recipients of the defined population who submitted usable responses.

4. Harmon Study Sample - The doctoral recipients from the defined population for whom high school records were available. Excluded from the sample were recipients who graduated from a foreign high school and for whom high school records were not made available.

5. Follow-up Study Population - All those doctoral recipients who were common to both the original AACTE Study population and the Harmon Study population. More specifically, the population consisted of all doctoral recipients in the field of education during the year 1958.

6. Follow-up Study Questionnaire Sample - all those doctoral recipients who had responded to the original AACTE Study and for whom correct names and current addresses were available. And secondly, all those doctoral recipients who submitted usable responses to the follow-up questionnaire.

7. Follow-up Study Ability Sample - All those doctoral recipients who had responded to the original AACTE Study and for whom data were received from their high schools for the Harmon Study. In other words, all doctoral recipients who were common to both the original AACTE Study sample and the Harmon Study sample.

8. Ability Criteria - As used in this study, ability criteria include measures of both aptitude and achievement. The three ability criteria employed in this study were intelligence test measures, high school rank in class, and high school mathematics-science grade-point average.

METHOD OF INVESTIGATION

The nature of the problem suggested the descriptive-survey approach. A re-analysis of the data obtained from the original AACTE and NAS Studies provided the basis for answering some of the questions raised. A questionnaire was designed to investigate the same group five years later and thus provided a basis for handling the remainder of the 13 questions outlined previously.

A letter addressed to Lindsey Harmon brought in reply the authorization to use information obtained from the earlier study by his office. To collate the data, it was necessary to use related information from AACTE's former study. The information from the AACTE Study was obtained and punched on IBM cards at the University of Denver. When this task was completed, the cards were then forwarded to Harmon's office in Washington for further processing. After the punching was completed,

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the cards were returned to the Bureau of Educational Studies and Testing, Indiana University, for final statistical computation and analysis. The following statistical measures were computed: total numbers, percentages, means, standard deviations, and appropriate inferential models.

The section of the study devoted to career motivation and satisfaction factors utilized a questionnaire technique. The initial sample consisted of 1,186 persons who received doctorates in 1958. The sample studied consisted of those doctoral recipients who could be contacted in 1963 and who provided usable responses.

The questionnaire consisted of 11 major questions and their related sub-questions dealing with positions held, salaries earned, promotions, ultimate professional goal, career direction, publications, and several other matters related to career development. The tabulation of the questionnaire data was effected by the use of electronic data processing. The following measures were compiled:

1. The number and per cent of respondents by degree earned and by sex.

2. The number and per cent of persons in eight position categories as determined from their present position title.

3. The number and per cent in various income categories, contrasting salaries in 1958 with those reported for 1963.

4. The number and per cent of geographic position changes occurring during the period studied.

5. The number and per cent of promotions with respect to academic rank or position title.

6. The number and per cent in each of three categories with respect to the degree of economic satisfaction.

7. Percentage and total number in each of four categories expressing the extent of present possibilities for advancement.

8. Percentage and number in each of four categories expressing degree of satisfaction with present position.

9. Percentage and total number in each of four categories which express direction of career development.

10. Number and per cent in each of 12 position-type categories which reflect ultimate professional objectives.

11. Percentage of time spent during the past month in five areas: administration, teaching and preparation, research and creative work, counseling with students, and/or other.

12. Number of publications produced since receiving the doctorate; subdivided into books, articles in periodicals and journals, bulletins and pamphlets, and miscellaneous.

13. Number and percentage of recipients checking each of nine possible results perceived as related to the completion of doctoral training.

NEED FOR STUDY

This follow-up study should prove valuable in these specific ways:

1. It should serve to make college and university administrators in charge of personnel selection more aware of the abilities and self-perceptions held by professional staffs.

2. It should make prospective doctoral students aware of the range of characteristics, career motivations and job satisfactions possessed by their own group in higher education.

3. It should supply fellow faculty members with knowledge of satisfactions, motivations and present status of colleagues as reflected in a follow-up technique.

4. It should answer several realistic and pertinent questions frequently raised by committees in charge of doctoral admissions.

5. It should give meaning and depth to the doctorate in education by surveying a population which seems to represent and portray personnel involved in teacher education.

It is apparent that the field of education has not always been able to attract its proportionate share of individuals of highest intelligence or with records of highest achievement. The professional status of professors of education varies widely from campus to campus. It might be safely assumed that the problems in the field of teacher education are at least as challenging, if not more so, than those in the physical sciences or other social sciences. Some observers believe that there exists somewhere a failure to present these challenges to enough able young students who eventually attain doctoral degrees in education.

As the findings and conclusions of this study emerge, some of the questions concerning measured ability, competence, professional motivations, aspirations, and attainments will be answered. This added information should assist in clarifying present images and attitudes regarding the doctorate in the complex and important field of education.

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Chapter II

PROCEDURES AND INSTRUMENTS USED IN THE STUDY

The scope of this study includes three major variables which help to describe and characterize the 1958 doctorates in the field of education. These factors involve the realm of ability, career motivation, and vocational satisfaction. These three facets are now further delimited and defined.

SOURCES OF DATA

The population as a whole consisted of the 1958 doctoral recipients in the field of education. As human beings, they present a rich diversity of economic, occupational, social, educational, and geographical backgrounds. They offer the observer an interesting cross-section of subjects who, in part, represent their profession. It seems safe to assume that the 1958 population was a fairly representative group demonstrating traits and characteristics similar to those of previous as well as more recent populations.

To bring together the information that was used in this study it was necessary to tap several sources. The first source of data was the 1958 questionnaires from the files of the American Association of Colleges for Teacher Education. The information obtained from this source consisted of names, addresses, personal history, and vocational backgrounds of the 1958 graduates. This resource material was available from the previous studies done by this organization on the doctorate in the field of education.

The second source for data was the records of the National Academy of Sciences, Washington, D.C. Use of these data was permitted by Lindsey Harmon, Director of Research. The information from this source consisted of intelligence test score, class rank, and grade-point average – measures collected in the Harmon study previously mentioned.

The last source of information was a questionnaire developed by John Sanderson, research associate of Bureau of Educational Studies and Testing at Indiana University, and mailed to the 1958 graduates in February, 1963.

THE SAMPLES

As previously noted, the subjects in this study were the 1958 doctoral recipients in education. As a group, they originally numbered 2,043.[1/]

The sample used in the Harmon study was 1,343 subjects,[2/] which represents 65 per cent of the original population of 2,043. It is evident that approximately 35 per cent of the group was not included. It was from this source that the three measures of ability were obtained. From the 1960 AACTE Doctorate in Education study, information relative to type of degree, major area, type of position, type of organization and kind and type of institution was received. When the data from the Harmon study and the AACTE study were collated, a sample of 1,186 was established. This sample was used to investigate the construct of ability.

The second segment of the study, designed to evaluate vocational satisfaction and career motivation, utilized a questionnaire. The questionnaire was the essential instrument in the follow-up of the original group of 1958 doctorates. The addresses used were those listed on the 1958 AACTE instrument. From these earlier questionnaires it was found that many respondents wished to remain anonymous; for them, obviously there were no addresses available. Others listed were names of students from foreign countries. Another problem arose soon after the initial mailing of February 4, 1963. Many letters were returned because the 1958 addresses were outdated or incorrect. Final accumulation of these undelivered questionnaires totaled 131.

The original AACTE questionnaires were reviewed and the degree-granting institution was recorded. A letter was sent to 37 placement bureaus of the graduating institutions requesting current addresses for the 131 recipients that could not be located initially. The institutional placement offices were remarkably cooperative; all 37 cooperated. Yet, many of the addresses received were the same as those listed on the 1958 questionnaires and thus defied further follow up within established time limits. Others were more current but still were not correct enough to make contacts. Of those questionnaires which were sent, 935 bore correct addresses and

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1/ Moore, Harold; Russel, J.H.; and Ferguson, Donald Volume II – The Institutions, The Doctorate in Education. American Association of Colleges for Teacher Education, Washington, D.C.: the Association, 1960. p. 13.

2/ Harmon, Lindsey, "High School Background of Science Doctorates." Science 133:682; March, 1961.

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were not returned to the investigator by the post office.

From this group of 935, replies were received from 731 of the graduates before the cut-off date of April 19, 1963; replies were received from 12 doctorates after this cut-off date. The percentage of return was, therefore, 36 per cent when one considers the original population of 2,043. Yet, applying the figure of 731 returns to the total number (935 persons) who could possible be contacted in 1963, a 78 per cent sample was identified.

One should be aware that the information regarding career motivation and vocation satisfaction represents only 36 per cent of the original total production of 2,043 doctorates. The decrease in size is not the result of random sampling, but rather due to unavailable names and addresses; and, in a lesser number of cases, due to their failure to respond to the questionnaire.

In summary, the total production of doctorates in the field of education was 2,043 for the year 1958. Following the collation of the Harmon data with the AACTE data, a total of 1,186 subjects were identified for the investigation of the construct of ability. For the study of career motivation and satisfaction, a beginning population of 1,186 subjects was established from the AACTE files. This latter total was again attenuated by cases with lack of accurate mailing addresses, and foreign student recipients. When these reductions were made, the total possible number of subjects available for this study was 935. From this number, 731 graduates responded to the follow-up questionnaire, thus affording a 78 per cent sample for this portion of the study.

INSTRUMENTS

The areas of ability, career motivation, and vocational satisfaction, as noted previously, are open to wide interpretation and definition. To probe into the area of ability, it was necessary to have instruments which yielded quantifiable data. These instruments consisted of intelligence tests; most notably, the Henmon-Nelson, Stanford-Binet, Wechsler-Bellevue, Kuhlman-Anderson, and Otis. These tests are frequently focal in any evaluation program which purports to measure intelligence by standardized methods. Average scores were obtained from recorded high school intelligence test results which served as a criterion of ability for each subject.

The first segment of this study also involved the records of high school achievement. Cumulative records yielded information relating to mathematics-science GPA's and rank in high school graduating class. In order to give consistency to the information, appropriate statistical techniques were applied. The techniques attempted to normalize data derived from the widest assortment of situations.

For high school class rank a normal distribution of class ranks was assumed and centiles were transmuted to standard scores; these standard scores have been termed "normalized rank scores." This scale has a mean of 100 and standard deviation of 20, to match as nearly as possible the interpretative significance of the intelligence test scores. Harmon comments,

> It is well to remember, however, in interpreting these normalized high school rank scores, that if one seeks to compare any two individuals, he makes the assumption that the high school from which the two students came are equal in their academic standards. Taking all schools together, we know that this is not the case, of course. The norms are local only. This deviation from the standardized test scores is significant for our purposes, particularly when we make comparisons between schools of different regions. Whatever educational handicaps a student may suffer by coming from an inferior educational environment is compensated for in the class rank score – his is compared with his peers in this score, and not with all students across the nation. Further, in field-to-field comparisons these interschool differences tend to cancel out, so that the normalized high school rank may be considered to be unbiased by differences in schools when we compare one field with another. Individuals from schools of all levels of excellence are found in all doctorate fields.[3/]

A mathematics-science grade-point average (GPA) was computed for each student in which a grade of C was set equal to 50; a grade of B to 70; and a grade of A to 90.[4/] While not directly comparable to the intelligence or high school rank scales, this grade-point average did yield a score which could be handled statistically.

The original AACTE instrument which sought background information on the doctorates in education was a questionnaire. This questionnaire was sent to the recipients themselves. This questionnaire yielded information relating to type of degree granted, major field of study, type of position, type of organization and kind and type of employing institutions. The

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3/ Ibid, p. 680.
4/ Ibid.

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instrument gave the following important information: (1) names and addresses; (2) degree granted (Ed.D. or Ph.D.); (3) major field of study; (4) type and kind of institution which employed the recipients; (5) type of position; and (6) type of organization.

A questionnaire was designed by John Sanderson to evaluate certain aspects of motivation and vocational satisfaction. The mailed questionnaire was developed as the appropriate instrument to collect the data on career motivation and vocational satisfactions for this study. Two factors determined this choice – the nature of the study and the inaccessibility of the respondents. Moreover, the geographic variability of the population surveyed in this study necessitated the use of a questionnaire. Therefore, for the purpose of this study, it was felt that the questionnaire was the most practical and appropriate data-gathering technique.

The respondents were assured that their anonymity would be respected. This assurance was given to increase the security of the participants and hence the validity of the data. In addition, recipients were asked explicitly to: (1) express their personal opinion, and (2) make use of open-ended questions through written reactions.

A survey was made of the literature and research related to: (1) what is known about the doctorate in education degree and the employing institutions, and (2) what is known about the recipients of the doctorate in education in respect to their abilities, career motivations, and vocational satisfactions. From this review of research and literature, there emerged certain questions and hypotheses which were useful in the construction of the Sanderson questionnaire.

Before the final questionnaire was prepared, it was pre-administered to several graduate students and members at Indiana University. The reactions of these people led to the deletion of some statements and reconstruction of others. Great care was taken to insure proper understanding through succinct and careful wording. Dr. Laurence Brown, who was a member of the original AACTE research team and presently a faculty member at Indiana University, carefully inspected the instrument and volunteered suggestions appropriate to the group being studied.

With these suggestions and criticisms in mind, the final questionnaire was prepared. It consisted of a cover letter followed by 11 major questions and their related subquestions. The responses to the questions could usually be made by simple checks or numbers. This format was chosen to simplify coding necessary for electronic data processing.

SUMMARY

One of the major difficulties in this research involved an attempt to reconcile the various "1958 doctoral classes." AACTE in its original studies covered the period, September, 1956 to September, 1958. Harmon used "a" 1958 total obtained from one source and the Sanderson questionnaire reached still a third "class of 1958." Because of the different cut-off dates for establishing the number and recipients of degrees granted in 1958, it is virtually impossible to completely reconcile these various populations or groups.

Perhaps the best conclusion is that the writers feel that there is very little reason to believe that the sample is unduly biased or unrepresentative of the 1958 population, although, admittedly, the sample remains somewhat undefined. This statement is made for the comfort of those who are hopelessly enmeshed in the numbers 2,043, 1,343, 1,186, 935, and 731.

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Chapter III

FINDINGS RELATIVE TO MEASURED ABILITY

This study was undertaken to investigate certain factors of ability, career motivation, and job satisfaction as they relate to the 1958 education doctoral recipients in the United States. Since this study has two distinct phases of investigation the interpretation will be divided accordingly. This chapter deals with the findings relative to the analysis of ability and its subfactors.

TOTAL GROUP

For the purposes of comparison with Harmon's earlier study, measures have been presented for the total group on three criteria: intelligence, mathematics-science GPA, and rank in class. Table 1 shows the frequency distribution, mean, and standard deviation (S. D.) of the group of 1958 doctoral recipients used in this study on the criterion of intelligence. Any difference between means equal to or above the .05 per cent level of significance was accepted as significant.

TABLE 1.—DISTRIBUTION OF INTELLIGENCE TEST SCORES FOR EDUCATION DOCTORATES, 1958

Army Standard Scale	Education doctorates
Above 169	3
160-169	2
150-159	16
140-149	34
130-139	84
120-129	128
110-119	110
100-109	74
90-99	19
80-89	10
70-79	0
Below 70	0
Total	480
Mean	121.30
S.D.	15.30
No information	706

It is interesting to note that Harmon[1/] found a total group mean of 123.3 and a standard deviation of 16.2 for 425 doctoral recipients in education on the criterion of intelligence. The mean of 121.30 found in this study is somewhat lower, as is the standard deviation of 15.30. It also is of consequence to realize that there are no high school test scores available for 706 graduates. No attempt was made to select a random sample, so that the group for which intelligence scores were available may represent a somewhat different population. Extreme caution should be taken in generalizing from these figures for which intelligence scores were available. The validity of the inferences must rest upon the statistical measures and calculations originally made by the Office of Scientific Personnel. In spite of these limitations, the opinion is held that the "true" mean I. Q. for the Education group is not far from 121.3 (AACTE finding) or 123.3 (Harmon's finding).

Table 2 sets forth the means and standard deviations of the total group on the criterion of mathematics-science grade-point averages (GPA). These statistics compare favorably with those of Harmon, even though the size of the populations differed. In 1958, Harmon found a mean of 66.35 and a standard deviation of 16.32 for 1,036 recipients. The mean found in this sample was 65.90 or 0.45 lower than Harmon's finding. This criterion measure is missing for only 70 graduates of the 1,186. Of the three measures of ability, mathematics-science GPA was surely most representative in that it included 94 per cent of the sample.

TABLE 2.—DISTRIBUTION OF MATHEMATICS-SCIENCE GPA'S FOR EDUCATION DOCTORATES, 1958

Mathematics-science letter grade	GPA	Education doctorates
A	90	54
A-	85-89	86
	80-84	145
B+	75-79	107
B	70-74	128
B-	65-69	103
	60-64	118
C+	55-59	93
C	50-54	110
C-	45-49	60
	40-44	55
D+	35-39	26
D	30-34	17
D- or E	Below 30	14
Total Number.		1,116
Mean		65.90
S.D.		15.79
No information		70

The other measure of previous achievement as it affects the total group is rank in high school

1/ Harmon, Lindsey, "High School Background of Science Doctorates," Science 133:679-688; March, 1961.

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graduating class. Table 3 shows the frequency distribution, mean, and standard deviation of this criterion. The mean of 115.48 and standard deviation of 17.77 compared favorably to Harmon's findings of 114.9 and 17.9, respectively. Again, a high number of subjects had no data available for them. Inference cannot safely be made that these 443 subjects would exhibit the same characteristics as those for whom data were available. A somewhat different population might indeed be represented. However, as before, in the case of measured intellectual ability, difficulty would be experienced in arguing that these 743 cases provide an atypical portrait of the total group. It was impossible to be absolutely sure since rank in class data were simply not available for 443 subjects of the study.

TABLE 3.—DISTRIBUTION OF RANK IN HIGH SCHOOL CLASS MEASURE FOR EDUCATION DOCTORATES, 1958

Normalized Rank Score	Education doctorates
160-169	1
150-159	9
140-149	56
130-139	101
120-129	169
110-119	142
100-109	138
90-99	71
80-89	35
70-79	17
60-69	3
Below 60	1
Total Number	743
Mean	115.48
S.D.	17.77
No information	443

DEGREE RECEIVED

The first subdivision for analysis was by degree received, Ed.D. or Ph.D. Following the same format the two groups were compared on the criterion of intelligence as shown in Table 4. The leading position of the Ph.D.'s is apparent in terms of average I.Q., 122:38, compared with 120.91 for the Ed.D.'s. The Ed.D.'s, however, have slightly less variability within the group and as one can see both groups are about proportionally distributed throughout the frequency intervals. Approximately two-thirds of each group is concentrated between the scores of 110-139.

A t-test showed no significant difference between groups means on this measure. As stated earlier, only differences at or above the .05 per cent level of significance were considered significant. Thus, there appeared to be no significant difference in measured intellectual ability.

Table 5 provides indices for comparison of the two degree groups in terms of rank in high school

TABLE 4.—DISTRIBUTION OF INTELLIGENCE TEST SCORES FOR DOCTORATES BY DEGREE

	Degree	
Army Standard Scale	Ed.D.	Ph.D.
170 and up	3	0
160-169	1	1
150-159	9	7
140-149	25	9
130-139	55	29
120-129	101	27
110-119	85	25
100-109	54	20
90-99	15	4
80-89	6	4
70-79	0	0
Below 70	0	0
Total Number	354	126
Mean	120.91	122.38
S.D.	15.07	15.96

TABLE 5.—DISTRIBUTION OF CONVERTED RANK-IN-CLASS SCORES FOR DOCTORATES BY DEGREE

	Degree	
Normalized Rank Score	Ed.D.	Ph.D.
160-169	0	1
150-159	7	2
140-149	36	20
130-139	73	28
120-129	122	47
110-119	111	31
100-109	108	30
90-99	53	18
80-89	20	15
70-79	17	0
60-69	2	1
Below 60	0	1
Total Number	549	194
Mean	115.08	116.60
S.D.	17.20	19.24

class. These normalized rank score categories have as a mean, 100, and a standard deviation of 20. Both groups are well above this mean index. Again, the Ph.D. group demonstrated the greater apparent mean, 116.60, versus 115.08 for Ed.D.'s. As was demonstrated in the previous table, the Ed.D. group has slightly less variability with its standard deviation of 17.20.

A t-test revealed no significant difference at the .05 level. Again, caution must be given to these findings because of the relatively large number of subjects for whom information was not available.

To continue this comparison, Table 6 demonstrates the index of mathematics-science grade-point average. The indices of mathematics and

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TABLE 6.—DISTRIBUTION OF MATHEMATICS-SCIENCE GRADE POINT AVERAGES FOR DOCTORATES BY DEGREE

Mathematics-science letter grade	GPA numerical grade	Degree	
		Ed.D.	Ph.D.
A	90	31	23
A-	85-89	61	25
	80-84	98	47
B+	75-79	84	23
B.....	70-74	95	33
B-.....	65-69	79	24
	60-64	88	30
C+	55-59	78	15
C	50-54	93	17
C-	45-49	47	13
	40-44	43	12
D+	35-39	23	3
D	30-34	10	7
D- or E	Below 30	12	2
Total Number.		842	274
Mean ...		64.89	69.02
S.D. ...		15.61	15.97

science provide two measures of general academic ability at the high school level. Originally, this criterion in its combined form was specifically directed toward the investigation of future scientists. Although this study group in education is outside this original purpose, mathematics-science GPA nonetheless proved to be an excellent index with which to study ability. In Table 6, the total number, mean, and standard deviations are given. The sub-group Ph.D.'s again attained the higher apparent mean, 69.02, but demonstrated nearly equal variability with a standard deviation of 15.97. The Ed.D.'s had a lower GPA mean, 64.89, the difference of which was greater on this criterion than on the other two. Both groups were well above 50, which is equal to a grade of C. The means of the two groups were contained in the interval 65-69 which is indicative of B- performance.

A t-test was run to determine if there was a significant difference between the GPA means. The difference between means was significant beyond the .001 level. Evidently, the Ph.D. degree which is so frequently purported to be a research degree is attracting those candidates with higher ability in mathematics and science as based upon records of high school achievement. In that mathematics and science are perhaps the best formal training areas in the high school curriculum for the scientific method, the findings bear a most interesting relationship to the degree earned.

This generalization was based upon scores of 1,116 subjects which represent 94 per cent of the population. The AACTE's earlier study indicated, however, that either degree will be best understood through its institutional association rather than from over-all aim or national statement of divergent functions.

In all three measures of ability, there were apparent differences in the measures of central tendency between the two groups. The Ph.D. group maintained an apparently larger mean on every measure. It seemed that the Ed.D.'s display greater homogeneity than the Ph.D.'s, as indicated by the standard deviations. However, there were no significant "F" values, indicating that the variances of the two groups were homogeneous.

Of the three criteria, it would seem that the intelligence score measure would provide the poorest basis for inference due to the great number for whom no information could be obtained. However, as Harmon points out, "the differences in findings for holders of these two degrees were very minor."2/ This finding seems to be maintained for this total group comparison except for mathematics-science GPA which revealed a highly significant difference.

This finding occurred in respect to the criterion of high school mathematics-science grade-point average in favor of the Ph.D's, and was significant beyond the .001 level. This does appear to be an important difference in the two studies.

TYPES OF POSITIONS

The original AACTE study separated the respondents on various factors which had transpired since receipt of the degree. One of these factors was type of position taken immediately following graduation. This occupational factor was sub-divided into five types: (1) teaching, (2) administration, (3) personnel services, (4) instructional services and (5) other.

Table 7 shows the total number, means, and standard deviations for the holders of the five types of positions on measures of I.Q., GPA, and rank in class. Special note should be given to sample size which in a few cases was quite small. Any sample size of less than 30 was considered to be beyond comparative treatment. The measure in Table 7 show that those connected with teaching demonstrate higher means on all three measures of ability: 122.19 – I.Q., 66.54 – mathematics-science GPA, and 116.27 – rank in class. This does not include Category V – "other," because too few cases were available for inclusion in the comparison.

The findings might indicate that those with greater ability are moving toward positions in

2/ Ibid., p. 680.

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TABLE 7.—TYPES OF POSITIONS TAKEN AFTER RECEIVING THE DOCTORATE COMPARED IN TERMS OF INTELLIGENCE TEST SCORES, GRADE POINT AVERAGE, AND RANK IN HIGH SCHOOL CLASS

Type of positions	I.Q.			Mathematics-science GPA			Rank in class		
	N.	Mean	S.D.	N.	Mean	S.D.	N.	Mean	S.D.
I. Teaching	*271	122.19	16.31	*658	66.54	15.57	*427	116.27	18.16
II. Administration — including research in administration, public relations	* 91	119.12	12.79	*229	63.99	16.47	*150	114.00	17.42
III. Personnel services — including directors and supervisors, heads of testing services	26	121.15	12.47	* 55	64.16	16.76	* 43	109.82	16.52
IV. Instructional services — including coordinators and supervisors, consultants	* 62	120.26	15.27	*119	65.70	15.11	* 83	114.46	16.78
V. Other	11	122.73	15.93	16	66.88	13.14	13	125.24	13.36
Total Number		461			1,077			716	

*Included in the analysis of variance.

teaching while others move toward nonteaching positions. This is especially interesting when one entertains the phrase "to administer... is to lead." The nonteaching positions are frequently those from which policy and program development emanate. A paradox would exist if this group were of lesser ability than those whom their policies affect.

To test if there were significant differences between means, a one-way classification analysis of variance was run for positions on the criteria of intelligence, mathematics-science GPA, and rank in class. The "F" value was not significant for any of the three criteria. However, it is interesting to note that those graduates who took their first position in teaching demonstrated a somewhat higher mean on all of the three criterion variables.

TYPES OF EMPLOYING ORGANIZATIONS

It was thought to be valuable to determine if certain employing organizations were receiving those graduates with greater ability. In accord with this aim, recipients were categorized into five types of organizations and measured on the three criterion scores. Table 8 sets forth the categories and criteria involved.

The categories are: public school district, college or university, service organization, business or industry, and other. If one notes the number for the types, it becomes evident that Categories IV and V lack sufficient numbers for comparison purposes. The employing organization of college or university tends to attract those of greater ability on all three measures, demonstrating means of 121.84, 66.45, and 115.98. However, the differences between means for the various types were extremely small especially in regard to intelligence. Yet, a somewhat logical conclusion was portrayed which indicated those of greater ability were moving into institutions of higher education; namely, the colleges and universities. The public school district maintains its number two position on all three measures. The category of service organizations is third on the measures although the differences were not extreme.

TABLE 8.—TYPES OF ORGANIZATIONS EMPLOYING THE DOCTORATES FOLLOWING GRADUATION COMPARED IN TERMS OF INTELLIGENCE TESTS, GRADE POINT AVERAGE, AND RANK IN HIGH SCHOOL CLASS

Types of organizations	I.Q.			GPA			Rank in class		
	N.	Mean	S.D.	N.	Mean	S.D.	N.	Mean	S.D.
I. Public school district	*100	120.34	13.21	*226	65.47	15.99	*138	115.06	19.23
II. College or university	*304	121.84	16.24	*744	66.45	15.56	*494	115.98	17.14
III. Service organization	* 41	119.56	14.23	* 80	60.54	17.64	* 59	111.69	19.50
IV. Business or industry	10	...	...	13	63.46	17.56	13	109.23	19.23
V. Other	5	...	...	14	...	...	10	...	...
Total		460			1,077			714	

*Included in the analysis of variance.

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The group contained within Type II, college or university, has less variability on every measure except intelligence where the standard deviation is 16.24.

A one-way classification analysis of variance was made for types of employing organizations on the criteria of intelligence, mathematics-science GPA, and rank in class. The "F" value was insignificant for intelligence and mathematics-science GPA. The highest "F" value of 3.12 on the measure of rank in class was just larger than the "F" value of 3.01 which was necessary for the difference to be significant at the .05 level with 2 and 688 degrees of freedom.

MAJOR FIELDS

Within the area of education are various subdivisions within which one may specialize or major. These major fields or areas of specialization are widely varied. The largest single major area subgroup in the original AACTE study was school administration, which constituted 22.9 per cent of the total group. Following this was educational psychology with 5.9 per cent, elementary education with 5.1 per cent, guidance with 4.8 per cent, and secondary education with 3.9 per cent. In order to discuss major fields without referring to the original 80 different specialities listed by the AACTE respondents, 15 categories were defined. These categories are listed in Tables 9, 10, and 11. Major field according to Brown and Slater[3/] was more a perception of self than divisional name used by some department of education. The direction of change seemed to be away from areas which might be termed "professional education" into more "academic" areas.

Table 9 compares the major fields in terms of intelligence test scores. Here the mean for the general population according to AGCT scores would be 100 with a standard deviation of 20. Again, the group as a whole is well above the average of the Army Standard Scale. Educational psycholgists comprise the group with the highest mean intelligence, $\bar{X}$ = 130.53. This average is approximately 1.5 standard deviations above the general population mean or the 93rd percentile. This sub-group of 15 psychologists represents what was originally a total population of 149. Little analogy is expected to be drawn when 90 per cent of the population is not represented. The same is true for many of the other groups. The lowest mean was attained by the special education group, 110.60. For the majority, however, the means were clustered between 120 and 122 which is near the average of the total group investigated.

To test simultaneously the significance of the differences between means of the groups, a one-way classification analysis of variance was computed on the six groups represented by 30 or more degree recipients; namely: administration, curriculum, physical education, guidance, subject areas, and the "all other" group. No significant difference was found on the criteria of intelligence.

TABLE 9.—COMPARISON OF MAJOR FIELDS IN TERMS OF INTELLIGENCE TEST SCORES

Major fields	Intelligence Test Scores		
	N	Mean	S.D.
Special education	10	110.60	13.57
*Administration	60	117.60	13.38
*Curriculum	47	122.26	13.65
*Physical education	50	120.88	14.56
Practical arts	25	119.44	15.54
Social foundations	13	124.46	12.33
Mathematics and science ..	20	114.70	15.79
Educational psychology	15	130.53	15.82
Secondary education	27	124.00	15.82
Elementary education	25	122.00	12.32
Higher education	8	122.00	16.97
*Guidance	33	120.00	14.52
Clinical psychology	2	No information	...
Student personnel	12	127.50	11.06
*Subject areas	40	127.20	18.26
*All other	93	119.59	16.33
Total Number	480		

*Included in the analysis of variance.

Again, note should be given to the size of these groups which is very small when the total population of 1,186 is considered. Inferences drawn or hypothesized from samples of this size must be made with extreme caution. Any error of sampling is multiplied by further division of the total group.

To continue, Table 10 shows the comparison of major fields by rank in high school class. The people in student personnel with a $\bar{X}$ score of 123.06 attained the highest average. They were followed in order by: curriculum, 118.14; secondary education, 117.96; and social foundations, 117.86. Physical education majors had the lowest mean of 111.00.

A one-way classification analysis of variance was computed for major areas on the criteria of rank in class for the 10 groups of 30 or more recipients. No significant difference was found among groups.

The last criterion, mathematics-science GPA, was used in Table 11 to compare the major fields. The higher education area was highest, $\bar{X}$ = 69.61; followed by student personnel, 69.58; and practical

3/ Brown, Laurence, and Slater, J. Marlowe. Volume I – The Graduates, The Doctorate in Education, American Association of Colleges for Teacher Education, Washington, D.C.: the Association, 1960. p. 4.

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TABLE 10.—COMPARISON OF MAJOR FIELDS BY RANK IN HIGH SCHOOL CLASS

Major Fields	Rank in high school class scores N	Mean	S.D.
Special education	17	112.24	16.25
*Administration	92	114.46	16.61
*Curriculum	56	118.14	14.71
*Physical education.....	62	111.00	18.92
*Practical arts	48	117.58	17.44
Social foundations.....	14	117.86	24.89
*Mathematics and science ..	32	115.25	14.90
Educational psychology....	28	117.50	18.09
*Secondary education.....	50	117.96	16.21
*Elementary education	49	115.63	18.27
Higher education.....	17	112.47	21.36
*Guidance	52	112.19	21.76
Clinical psychology.....	2	no information	
Student personnel.....	17	123.06	13.73
*Subject areas	58	114.48	18.84
*Other.....	149	116.54	17.24
Total number	743		

*Included in analysis of variance.

TABLE 11.—COMPARISON OF MAJOR FIELDS BY MATHEMATICS-SCIENCE GRADE POINT AVERAGES

Major fields	Mathematics-science grade point averages N	Mean	S.D.
Special education.....	23	64.00	14.76
*Administration	154	64.99	15.22
*Curriculum	90	65.84	16.22
*Physical education	81	59.48	14.79
*Practical arts	75	69.49	14.86
*Social foundations.....	36	65.00	18.69
*Mathematics-science.....	43	67.98	15.37
*Educational psychology....	35	68.20	14.02
*Secondary education.....	68	68.31	15.30
*Elementary education	72	66.56	13.85
*Higher education.....	33	69.61	15.62
*Guidance	88	68.56	14.21
Clinical psychology.....	4	No information	...
Student personnel.....	19	69.58	13.86
*Subject areas	82	62.27	18.86
*All other	213	65.99	16.09
Total Number.....1,116			

*Included in analysis of variance.

arts, 69.49. The sub-group of physical education with its mean of 59.48 seems to have achieved less in mathematics-science type high school courses. The group as a whole, however, lies within the interval of 60-69 which would be indicative of B-achievement. Physical education, with a mean of 59.48, would be the only deviant from this but would be extremely close to the lower limit.

To test the significance of the differences between the major areas simultaneously, a one-way classification analysis of variance was performed for those groups with 30 or more recipients. The "F" value on the criterion of mathematics-science GPA was significant beyond the .01 level.

Table 12 summarizes all three criteria and their means for each major field in order to better portray the factors and trends involved.

TABLE 12.—COMPARISON OF MAJOR FIELDS BY THREE CRITERIA OF ABILITY

Major fields	I.Q.	GPA	Rank in class
Special education	110.60	64.00	112.24
Administration	117.60	64.99	114.46
Curriculum	122.26	65.84	118.14
Physical education.....	120.88	69.49	111.00
Practical arts	119.44	69.49	117.58
Social foundations.....	124.46	65.00	117.86
Mathematics-science.....	114.70	67.98	115.25
Educational psychology...	130.53	68.20	117.50
Secondary education.....	124.00	68.31	117.96
Elementary education	122.00	66.56	115.63
Higher education.....	120.00	69.61	112.47
Guidance	123.09	68.56	112.19
Clinical psychology.....	No information		
Student personnel.....	127.50	69.58	123.06
Subject areas	127.20	62.27	114.48
All other	119.59	65.99	116.54

CLASSIFICATION OF INSTITUTIONS

"The Education Directory, Part 3, Higher Education" classifies all institutions of higher learning according to highest level of training and by type of program. The criteria for listing in the directory are as follows:

1. Institutions accredited or approved by a nationally recognized accrediting agency, a state department of education, a state university, or operating under public control, are eligible for inclusion.
2. Institutions not meeting requirements of Criterion 1 are eligible for inclusion if their credits have been and are accepted as if coming from an accredited institution by not fewer than three accredited institutions.

The following categories have been established to designate institutions by highest level of training:

I. Two but less than four years of work beyond the 12th grade – includes junior colleges,

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technical institutes, and normal schools offering at least a two-year program of college-level studies

II. Only the bachelor's and/or first professional degree – includes those institutions offering courses of studies leading to the customary bachelor of arts or bachelor of science degree, and all those degrees which entitle the possessor to enter the profession indicated; e.g., doctor of medicine, bachelor of pharmacy, or bachelor of science in engineering

III. Master's and/or second professional degree – includes those institutions offering customary first graduate degree, and any degree earned in the same field after the first professional degree, or after a bachelor's degree in that field; e.g., the degree of electrical engineer, earned after the bachelor of engineering, or the degree of doctor of science of law earned after the bachelor of laws degree

IV. Doctor of philosophy and equivalent degrees

V. Other

The designations of institutions by type of program are as follows:

a. Terminal-occupational (below bachelor's degree)
b. Liberal arts and general
c. Liberal arts and general, and terminal occupational
d. Primarily teacher preparatory
e. Liberal arts and general, and teacher preparatory
f. Liberal arts and general, teacher preparatory
g. Professional or technical
h. Professional or technical, and teacher preparatory
i. Professional or technical, and terminal-occupational
j. Liberal arts and general with 1 or 2 professional schools
k. Liberal arts and general with 3 or more professional schools

Using this classification system, the first post-degree employing institution was categorized according to level and type. Using the highest level of training code, the subjects were then studied to see if certain institutions farther up the educational ladder were employing those doctoral recipients with greater ability. The graduates were coded on this item and then analyzed in terms of I.Q., GPA, and rank in class. In Table 13 these findings are presented. The three criteria of I.Q., GPA, and rank in class are given in terms of total number, mean, and standard deviation.

The data would seem to indicate that institutions of the lowest order are attracting those doctoral graduates of greater ability as measured by intelligence. The GPA for the second classification level is higher than for the others. The mean rank in class measure is also higher for Group II than for Groups I, III, or IV. This leaves the issue somewhat opaque in that institutional drawing points relative to rank in class, and GPA differs from I.Q. The numbers used in making these comparisons in all three instances were not always large, the smallest being Group I – I.Q. with 15 doctoral recipients.

In the opening chapter under "Statement of the Problem," p. 2, the question was proposed concerning differences between kinds of institutions. From Table 13, analyses of variance were computed to determine if certain classes of institutions by level were attracting those graduates with greater ability. No significant differences were found. Therefore, there is little reason to suspect that certain classes of institutions are not attracting their proportional

TABLE 13.—CLASSIFICATION OF INSTITUTIONS ON INTELLIGENCE TEST SCORES, MATHEMATICS-SCIENCE GPA'S AND RANK IN CLASS FOR 1958 DOCTORATES

Classification of institutions by level	I.Q.			GPA			Rank in class		
	N.	Mean	S.D.	N.	Mean	S.D.	N.	Mean	S.D.
I. Two but less than four years of work beyond the 12th grade	15	128.53	20.39	* 38	64.24	16.81	26	114.08	19.67
II. Only the bachelor's and/or first professional degree	22	120.64	14.27	* 87	69.49	14.12	* 54	119.48	18.99
III. Master's and/or second professional degree	*140	119.34	17.29	*325	65.30	16.02	*216	114.72	16.83
IV. Doctor of philosophy and equivalent degrees	*129	122.95	14.57	*283	67.18	15.18	*200	116.75	16.67
Total number	306			733			496		

*Included in analysis of variance.

institutional share of the doctorates with higher ability.

Table 14 shows that the highest mean I.Q. of 133.08 is a characteristic of type "c" program – liberal arts, general, and terminal occupation. However, the highest mean I.Q. of a group of 30 or more recipients was 122.48 for type "k" program – liberal arts and general with three or more professional schools. The highest mean mathematics-science GPA was 69.20 and was made by type "j" program – liberal arts and general with one or two professional schools. The highest rank in class was also obtained by type "j"; it was 118.97. A one-way classification analysis of variance was computed on each of the three criteria for groups of 30 or more. No significant differences between groups were found.

With this consideration, the categories of comparisons on ability have been exhausted. The next chapter will continue with investigation into the constructs of career motivation and job satisfaction.

TABLE 14.—CLASSIFICATION OF INSTITUTIONS BY TYPE OF PROGRAM ON THE THREE MEASURES OF ABILITY FOR THE 1958 DOCTORATES

Type of program	I.Q.			Mathematics-science GPA			Rank in class		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
a	...	...	...	...	...	...	...	...	...
b	...	...	...	5	...	...	4	...	...
c	13	133.08	16.40	* 31	64.71	17.65	21	114.29	21.27
d	* 40	118.60	17.68	* 87	63.43	15.93	* 57	114.84	16.94
e	* 47	115.23	15.57	*138	64.84	15.49	* 83	112.99	15.92
f	* 44	121.09	18.17	*101	68.25	14.59	* 69	116.35	19.28
g	...	...	...	8	...	...	6	...	...
h	...	...	...	9	...	...	7	...	...
i	...	...	...	2	...	...	1	...	...
j	18	123.44	14.16	* 45	69.20	13.22	* 33	118.97	18.67
k	*132	122.48	15.16	*304	67.05	15.49	*213	117.12	16.48
Total	294			730			494		

*Included in analysis of variance.

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Chapter IV

FINDINGS RELATIVE TO CAREER MOTIVATIONS AND SATISFACTIONS

The analysis of findings and results in the chapter of the study will be concerned with the data obtained from the mailed questionnaire. The instrument was designed to evaluate and measure certain factors which relate to the career motivation and satisfaction of 1958 doctoral recipients in education. The analysis of the data will in general follow the format of the questionnaire, but occasionally the data will be handled by topical headings, such as, "Income – 1958 and 1963."

SAMPLE

The respondents in this sample totaled 731, but from this number, nine had to be eliminated because of failure to follow directions. Separating the sample according to degree received, 492 Ed.D.'s and 230 Ph.D.'s or 68 and 32 per cent, respectively, were found. This ratio is similar to that noted in earlier AACTE studies on the same population which revealed the percentages by degree as 66 for the Ed.D. and 34 for the Ph.D.[1/] Table 15 shows the number and per cent of respondents by degree earned.

TABLE 15.—NUMBER AND PER CENT OF RESPONDENTS BY DEGREE EARNED

Degree	Number	Per cent
Ph.D.'s	230	32
Ed.D.'s	492	68
Total	722	100

A further check on the respondents by sex revealed percentages almost identical with those noted by Brown and Slater.[2/] Their percentages for the group by sex were males 79.7, and females 20.3. Table 16 displays a remarkable similarity with 80 and 20 per cent, respectively.

TABLE 16.—NUMBER AND PER CENT OF RESPONDENTS BY SEX

Sex	Number	Per cent
Male	578	80
Female	144	20
Total	722	100

POSITION

The respondents were divided into seven categories which represent possible positions of employment. It was imperative that an employment census be included in this study to see if the population as a whole was staying within the profession of education or moving to other occupational areas. The subjects' responses to position were coded using the schema shown in Table 17.

TABLE 17.—NUMBER AND PER CENT OF 1958 DOCTORAL RECIPIENTS BY POSITION IN 1963

Position	Number	Per cent
Elementary Teaching	10	01
Elementary Administration and Supervision	5	01
High School Teaching	14	02
High School Administration and Supervision	148	20
College Teaching	461	64
College Administration — deans, directors, etc.	47	07
Private practice — government — business	37	05
Total	722	100

It is interesting to note that 461 persons or 64 per cent of the 1958 graduates are now pursuing college teaching. Seven out of ten of the group surveyed are involved in higher education in some capacity. Only 5 per cent of the sample is employed in government or business, or engaged in private practice. Many of these latter positions, however, are closely related to education, being with state boards of education, private testing bureaus, the United States Office of Education, and similar organizations. Thus, there is no evidence to support the hypothesis that the graduates are moving in substantial numbers toward areas other than education.

INCOME

The data presented here will involve two distinct periods of time. The first presentation, Table 18, contains the number and per cent of doctoral candidates

1/ Brown, Laurence, and Slater, J. Marlowe Volume I – The Graduates, The Doctorate in Education. American Association of Colleges for Teacher Education, Washington, D.C.: the Association, 1960. p. 8.

2/ Ibid., p. 13

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TABLE 18.—NUMBER AND PER CENT OF DOCTORAL CANDIDATES IN SEVEN INCOME CATEGORIES FOR THE YEAR 1958

Income—1958	Number	Per cent
Less than $2,500	57	07
$2,500 to $4,999	100	14
$5,000 to $7,499	321	45
$7,500 to $9,999	181	25
$10,000 to $14,999	59	08
$15,000 to $19,999	4	01
$20,000 and above	0	0
Total	722	100

by seven income categories for the year 1958. This display represents total income received during the year in which the candidates were completing degree requirements.

Table 18 indicates that approximately one-half of the respondents were receiving between $5,000 and $7,499 for the year 1958. This salary range seems rather high when one considers that these persons (actually 45 per cent of the doctoral recipients) were completing requirements for the degree. Perhaps graduate students aren't as financially embarrassed as one might think! Even more startling is the observation that in 1958 four out of five of the degree applicants were earning $5,000 or more. Only 21 per cent of the 1958 doctoral crop was earning less than $5,000. However, caution should be used in the inference drawn from these data since it is most likely that several of these reported figures reflect salary earned in the first post-doctoral position. Undoubtedly, many of these respondents completed their doctoral degrees in absentia.

Turning next to 1963 and the total annual income five years after receipt of the degree, one finds as expected an upward shift in amount earned. In Table 19, 54 per cent fall in the $10,000 to $14,999 income

TABLE 19.—NUMBER AND PER CENT OF DOCTORAL CANDIDATES IN SIX INCOME CATEGORIES FOR THE YEAR 1963

Income—1963	Number	Per cent
Less than $5,000	11	02
$5,000 to $7,499	37	05
$7,500 to $9,999	208	29
$10,000 to $14,999	392	54
$15,000 to $19,999	57	08
$20,000 and above	17	02
Total	722	100

bracket as compared with only 8 per cent in 1958. Further, the per cent contained in the $15,000 to $19,999 bracket is now 8 per cent as compared with the earlier measure of 1 per cent. Of the 722 respondents, 17 were earning more than $20,000. As a final measure of improved earning power, one may note that 93 per cent of the 1958 doctoral class reported in 1963 gross annual salaries of $7,500 or more. It would be most interesting to have available total earnings for doctorates in other fields five years subsequent to the granting of the doctorate.

These earned income figures for both 1958 and 1963 are for a 12-month period and thus reflect academic year salaries augmented by summer salaries, extension teaching earnings, royalties, and the like.

POSITION AND PROMOTION CHANGES

The question of the mobility of the 1958 doctorates was posed earlier. Interest has been expressed as to whether the graduates assumed a within-institutional approach to the attainment of their career goals or whether they used job relocation for satisfaction of their needs. Also, if the group was mobile, how mobile was it? This answer was obtained by asking the respondents to check the number of times they had, since 1958, made geographic changes. Table 20 shows the data appropriate to this five-year period.

TABLE 20.—NUMBER AND PER CENT OF POSITION CHANGES FROM A GEOGRAPHICAL STANDPOINT: 1958–1963

Position changes	Number	Per cent
None	261	36
1	295	41
2	119	16
3	41	06
4	04	.6
More than 4	02	.3
Total	722	99.9

The majority, 64 per cent, of the doctoral degree holders have made at least one move in this five-year period. Yet, approximately one out of three remained at his first position location. About one-fourth of the 1958 class made two or more moves. One is led to believe by notes on the returned questionnaires that the search for greener pastures will continue even for some persons who have not yet effected a single change. Thus, it may be encouraging for some college employing officials to observe that 461 of the doctoral recipients surveyed have relocated one or more times. Other deans and presidents may take some heart from the fact that 261 of this group have remained stable. Finally, the academic market place seems to indicate a trend toward movement from institution to institution to satisfy needs of status plus enhanced environmental satisfaction. Some college professors, of course, have demonstrated that elevation in rank and more rapid increase in earnings may be attained more

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quickly by one, two, or three well-considered moves.

Another change which is indeed important concerns promotion within rank. This, for example, would be assistant professor to associate professor. A summary of the responses is given in Table 21.

TABLE 21.—NUMBER AND PER CENT OF PROMOTIONS WITHIN THE RANKS RECEIVED SINCE 1958

Promotions	Number	Per cent
None	440	62
1	188	25
2	77	10
3	11	02
4	06	01
More than 4	00	00
Total	722	100

One might reason that the large accumulation of responses in the "none" category, 62 per cent, was due to those who are in educational environments where this rank scheme is not used. However, many respondents in the college milieu had not received any promotion change within the ranks since their initial placement in 1958. Apparently, 188 persons or 25 per cent of the graduates have received one promotion during this time period. It is difficult to ascertain the expected promotion rate because of the heterogeneity of institutions and types of employment reviewed. However, dependent upon these factors and others as well, the expected first promotion in college circles usually comes three or four years following graduation. Many respondents listed as an additional note that they expected a promotion for the 1963-64 school year.

CAREER SATISFACTION

Perhaps the most important aspect of any vocational venture is the satisfaction associated with it. The intellectual rewards from teaching, counseling, administration and research should be self-actualizing and do indeed engender a great deal of respect and concern for the profession. Yet, there is question as to whether these less tangible factors compensate for more pressing needs such as salaries and rank. It was with these thoughts in mind that several questions were posed relative to career satisfaction.

The first inquiry was related to the monetary aspect of professional satisfaction. The respondents were asked if they were fully satisfied, partially satisfied, or dissatisfied with their present economic status and outlook in their current position. The results obtained are presented in Table 22.

TABLE 22.—NUMBER AND PER CENT OF DOCTORAL RECIPIENTS SHOWING EXTENT OF ECONOMIC SATISFACTION

Economic satisfaction	Number	Per cent
Fully satisfied with the economic status and outlook of present position	321	44
Only partly satisfied with the economic status and outlook of present position.	360	50
Dissatisfied with the economic status and outlook of present position	41	06
Total	722	100

It is surprising to note that of this total group only 6 per cent show any forthright dissatisfaction with economic status. By comparison 44 per cent are fully satisfied with their economic situation at the present time. The remaining half of the respondents claim to be only partially satisfied. This limited satisfaction may be a manifestation of the general professional dissatisfaction with the lag in teachers' salaries as compared to other professional groups.

Relating again to the construct of career satisfaction, a question was used in the instrument to investigate the degree of over-all satisfaction with present position. Once again only a few respondents, 2 per cent, indicated a thorough dissatisfaction while 37 per cent expressed complete satisfaction, as shown in Table 23. About one respondent out of every two was satisfied, but yet would consider a change. This finding is in agreement with the general result of the mobility situation.

TABLE 23.—NUMBER AND PER CENT OF DOCTORAL RECIPIENTS SHOWING DEGREE OF POSITION SATISFACTION IN 1963

Position satisfaction	Number	Per cent
Thoroughly satisfied. No desire to change positions at this time	272	37
Satisfied, but would consider a change	371	51
Somewhat dissatisfied. Would change if possible	70	10
Thoroughly dissatisfied	09	02
Total	722	100

Proceeding with the factor of career satisfaction, Table 24 displays the number and per cent of doctoral recipients and their corresponding satisfaction with professional advancement. Earlier, it was shown in Table 21 that 62 per cent of the population had not had a promotion since 1958. Table 24 shows that 467 persons or 64 per cent still consider further advancement a possibility, while 91 respondents or 13 per cent believe that there is much opportunity for advancement. It would seem that the majority, 77 per cent, are satisfied with their career advancement and look forward to further progress in their present posts.

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TABLE 24.—NUMBER AND PER CENT OF DOCTORAL RECIPIENTS SHOWING SATISFACTION WITH RESPECT TO ADVANCEMENT IN PRESENT POSITION IN 1963

Advancement	Number	Per cent
Have advanced as far as it is possible to go in this position	117	16
Have made good progress, but may advance still further	467	64
Have recently taken this position and there is much opportunity for advancement	91	13
Have made little or no progress or advancement in position	47	07
Total	722	100

CAREER GOALS AND DIRECTION

There are two items for consideration under this heading. The first of these is the respondent's perception of his ultimate professional objective. This would be a self-analysis of the aspirations and goals which best fit the graduate in terms of professional objective. The second factor relates to the actual, on-going development of career roles.

Table 25 shows how the respondents envision their ultimate professional objective. The vast majority, 80 per cent, consider the college or university setting as the locus for the attainment of

TABLE 25.—NUMBER AND PER CENT OF DOCTORAL RECIPIENTS SHOWING ULTIMATE PROFESSIONAL OBJECTIVE

Ultimate professional objective	Number		Per cent	
College or university	578		80	
Teaching		344		48
Administration		177		24
Research		57		08
Public school	101		14	
Teaching		3		00.4
Administration		14		02
Supervision		84		12
Private school	3		00.4	
Teaching		1		00.1
Administration		2		00.2
Supervision		0		00.0
Other	40		05.5	
Government		15		02
Business		5		00.6
Private practice		20		03
Total	722	722	99.9	100.3

their ultimate career objective with college teaching attracting approximately 50 per cent of the 722 respondents. Public school positions look inviting to 14 per cent of the class of 1958. The private school attracts only a very few hopefuls while government, business, and private practice display drawing power for about 5 per cent of the subjects.

The above findings are now contrasted with actual career direction as shown in Table 26. Thirty-seven per cent of the respondents see their career as one maintaining its present direction. However, 40 per cent of the persons surveyed indicate that, at the present, they are moving toward roles involving more supervision and administration. Only 13 per cent perceive an increased involvement with research activities and even fewer, 10 per cent, seem headed

TABLE 26.—NUMBER AND PER CENT OF DOCTORAL RECIPIENTS SHOWING CAREER ROLE DIRECTION

Career direction	Number	Per cent
Moving toward more teaching	78	10
Moving toward more supervision or administration	287	40
Moving toward more research	94	13
Maintaining present direction	263	37
Total	722	100

toward more teaching. However, these percentages need to be interpreted relative to present position. Since a majority, 67 per cent, are already engaged primarily in teaching (see Table 17), and nearly 50 per cent perceive teaching as an ultimate professional objective (see Table 25), it is a small wonder that anyone is moving toward more teaching, let alone 10 per cent.

Although it is not directly connected with career goals or direction, Table 27 sets forth the results on amount of time spent on various academic duties. From this display, one can see that some administrative work is incurred by about 82 per cent of the respondents. Teaching and counseling each account for some time and energy of 71 per cent of the persons surveyed. Sixty per cent of the members of the doctoral class spend part of their professional time in research activities. Only six persons, however, spend 90 to 100 per cent of their time in research per se. It was very surprising to note that administration occupied such a central role. In this sample, 102 people were giving between 90 and 100 per cent of their time to administration. This was the greatest frequency in the highest time interval on any of the seven variables. Unexpected also, was the discovery that only 35 persons were devoting 90 to 100 per cent of their hours to teaching alone.

Frequencies in the teaching column vary from a low of 32 who devote 0 to 9 per cent of their time to this activity to a high of 73 who spend three-fourths of their time in teaching. Counseling and research activities claim many people who give a relatively limited amount of time to them. It is an interesting paradox that research, which determines to a great extent one's advancement, is awarded so little time by so many persons.

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TABLE 27.—NUMBER AND PER CENT OF 1958 DOCTORAL RECIPIENTS SHOWING PER CENT OF TIME DEVOTED TO SELECTED AREAS IN 1963

Per cent of time	Administration	Teaching	Counseling	Research	Other (includes supervision, private practice, committee work, etc.)
90-100.....	102	35	02	06	07
80-89.....	47	59	14	04	06
70-79.....	39	73	04	05	06
60-69.....	32	58	04	06	07
50-59.....	62	68	10	22	06
40-49.....	34	45	14	08	06
30-39.....	31	38	36	25	11
20-29.....	88	45	116	63	13
10-19.....	96	59	201	164	18
00-09.....	60	32	110	133	09
Total Number.....	591	512	511	436	89
Per cent.....	82	71	71	60	12

Since this was an open-ended question which permitted the inclusion of other areas of time concentration, certain additional statements were written in by the respondents. Only 89 persons listed these in any amount. Generally, the statements were related to supervisory, private practice, or committee-work-type activities. This analysis, then revolves about four prime duties for educators; namely, administrative work, teaching, counseling, and research.

PUBLICATIONS

As was previously mentioned, many advancements and promotions are determined by the articles and books one has published. This criterion holds true for the field of education, but perhaps to a lesser extent than for certain other disciplines. This study was concerned with the amount and kind of publications produced since 1958. The respondents were asked to indicate the number of professional manuscripts which had been written following the granting of the doctorate in 1958.

Table 28 shows the number and per cent of the various publications and also the number of authors of these publications. Periodicals have been the most frequently used outlet for publication with 381 authors and 1,075 articles. Bulletins occupy the next most popular place with 215 authors and 614 productions. Books, of course, are published less frequently. Approximately 10 per cent of the doctorates have written one or more. The group in total has published 99 books which, without any other comparative data in regard to time and work required for authorship, is incapable of any value judgment.

STATUS ROLE

It seems that one of the most interesting questions that could be posed to this group would be related to the importance of the doctorate in attaining certain goals which enhance status and development. The respondents were given the opportunity to answer these questions by a "yes," "no," or "uncertain," response. These status role questions could be categor-

TABLE 28.—NUMBER OF WRITERS AND VARIOUS TYPES OF PUBLICATIONS PRODUCED BY THE DOCTORAL RECIPIENTS, 1958

Number of Publications per Writer	Books		Articles		Bulletins		Other	
	Writers	Publications	Writers	Publications	Writers	Publications	Writers	Publications
09.....	00	00	00	00	01	09	01	09
08.....	00	00	19	152	15	120	01	08
07.....	00	00	11	77	04	28	01	07
06.....	00	00	12	72	11	66	06	36
05.....	00	00	22	110	10	50	04	20
04.....	00	00	31	124	17	68	07	28
03.....	04	12	75	225	33	99	09	27
02.....	14	28	104	208	51	102	09	18
01.....	59	59	107	107	72	72	26	26
Total Number ...	77	99	381	1,075	215	614	64	179

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ized under such headings as: "status with peers," "status with superiors," and "position status."

An inspection of Table 29 indicates that the doctorate is perceived as vitally influencing every status factor. The majority in every case responded to the effect that the doctorate did enhance status role. The factor or item least affected by the doctorate was the question related to increased acceptance by colleagues. Evidently, this item is difficult to ascertain or evaluate in that 29 per cent of the respondents were uncertain. Nevertheless, 58 per cent thought that the doctorate did result in increased acceptance by colleagues. All items indicated that a majority felt that the doctorate resulted in a desirable change in status. The item in which the doctorate produced its greatest impact was increase in salary, where 86 per cent thought that they had received a pay increase as a result of the doctorate. Evidently, the group feels that the years and money given to attaining the doctorate have been worth the effort. The increase in status role brought about by the receipt of the doctorate is indicated by a majority in every case.

The last item in the questionnaire refers to the anticipation of changing from one's present position. Twenty-six per cent are planning such a move while another 26 per cent are, at this time, uncertain. It is interesting to note that 48 per cent are not considering a move at the present time. With 52 per cent either definitely planning or considering a move, evidence, again, is shown that there is considerable mobility among the doctorates.

The sample used in this study cooperated remarkably well with the directions given within the questionnaire. The questionnaire itself was designed to permit both ease or response and ease of analysis. Many compliments were received on the clarity of content and apparent susceptibility to accurate and rapid analysis. The only category which produced any difficulty was the last, on status role, where 12 respondents had to be dropped because of confusion over the directions for completion.

There was indication of total representation on the basis of two factors: sex and degree received. These per cents of responses coincided with earlier data analyzed by Brown and Slater.3/

TABLE 29.—NUMBER AND PER CENT OF DOCTORAL RECIPIENTS SHOWING CHANGES IN STATUS ROLES AS A RESULT OF THE DOCTORATE

Status role as a result of doctorate	Yes		No		Uncertain		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Received promotion in rank	478	67	170	24	52	09	710	100
Increase in salary.....	614	86	62	09	34	05	710	100
Increased prestige with peers	587	80	40	06	103	14	710	100
Increased prestige with superiors	547	77	50	09	115	14	710	100
Increased acceptance by colleagues .	412	58	99	13	196	29	710	100
Increased feelings of security.....	526	74	127	16	57	10	710	100
More opportunity to initiate plans...	485	68	134	18	91	14	710	100
Plans win acceptance by superiors and peers	530	75	34	05	146	20	710	100
Increased opportunity for advancement	419	59	141	20	150	21	710	100

3/ Ibid., p. 8 and 13.

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Chapter V

SUMMARY, AND RECOMMENDATIONS

SUMMARY

In 1861, Yale awarded three doctoral degrees, the first earned Ph.D.'s in America's history. By 1876, the year that Johns Hopkins dedicated itself to the development of the Ph.D., the precedent set by Yale was being followed in 25 institutions which that year awarded a total of 44 Ph.D. degrees. The degrees meant that the notion of serious study beyond the B.A. was being widely established, and with the founding of Johns Hopkins, impetus was given to the organization of graduate study into separate schools.

This development carried over into the field of education where Clark University in 1891 awarded the first Ph.D. in education. During the period of greater expansion, the Ed.D. degree was begun. The idea was created and originally fostered at Harvard University, which granted the first Ed.D. degree in 1921.

With the initiation of these programs for doctorates in the field of education, certain precedents were set forth. The Ph.D. was intended to be an "academic-research" degree while the Ed.D. was to be a "practioner-professional" degree. Within the field of education, subdivisions were created to accommodate major areas of specialization. Through the earlier AACTE Studies, however, there was indication that degree and major areas of specialization could be best understood through their institutional association, rather than from an over-all aim or national statement of divergent functions.

Thus from very diverse backgrounds, specializations, and institutional settings have come a group of people who have attained the doctorate in education. Because of this heterogeneity, concern has arisen relative to certain qualities and abilities of this group.

It is from this concern and interest that this study arose. This research has been concerned specifically with measured ability, achievement, career motivation, and job satisfaction as they related to the various subdivisions and subgroups comprising the doctorates in education. More specifically this follow-up study focused on the 1958 graduates. The detailed findings have been presented in Chapters III and IV. Chapter III was devoted to ability and achievement and Chapter IV to job satisfactions and career motivations.

The study examined the following two clusters of questions:

1. With respect to the three ability and achievement criteria (i.e., intelligence test scores, normalized rank in high school graduating class, and high school mathematics-science GPA):

   a. Do the 1958 recipients of Ph.D.'s and Ed.D.'s differ significantly?

   b. Are certain types and levels of institutions of higher learning employing those doctorates of superior ability and achievement?

   c. Are there significant differences in ability and achievement among the doctoral recipients in regard to their 15 major fields of education?

   d. Are the 1958 graduates with higher ability and achievement moving into certain types of positions and types of employing organizations?

2. With respect to the follow-up questionnaire portion of the study:

   a. Are the 1958 graduates working within the profession of education five years later?

   b. Do the recipients rely upon frequent job relocations to satisfy their motivations and aspirations? Do the 1958 recipients plan to stay within their present positions or are their aspirations toward areas other than their present positions?

   c. How many promotions within the ranks have been received since 1958?

   d. How do the recipients spend their time while on the job?

   e. What is the salary range of the group in 1963?

   f. Are the recipients satisfied with their present career roles?

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g. Is there evidence that the doctoral recipients have taken an active part in publication of professional manuscripts?

h. What noticeable changes have come about in status role as a result of doctoral training?

Related research regarding these stated questions is indeed sparse and incomplete. There is a limited number of articles which involves topics of ability, achievement, motivation, and satisfaction for recipients of the doctorate. Education, from a nationwide view, has more relevant information than other disciplines, but even this amount is negligible. It would seem that doctoral degree holders are very research oriented, but oriented to problems other than a study of themselves. Many of the ideas and directions of this study were suggested by the findings of Harmon, Brown, Slater, Stecklein and Eckert. The investigation was further influenced by the historical development of graduate programs as described by Berelson and Carmichael.

The methods and techniques of study included electronic data processing which provided for appropriate statistics and analyses.

FINDINGS

The findings of this analysis were as follows:

1. The scores of the Ph.D.'s were apparently higher than those of the Ed.D.'s on all three criterion scores; however, the difference reached statistical significance only in the case of mathematics-science GPA ($p < .001$).

2. The recipients were studied according to position of first employment as related to the three criteria of ability and achievement. The specific positions studied were teaching, personnel services, administration, instructional services, and other. An analysis of variance showed that the means of those in specific categories of positions were not significantly different on any of three criteria.

3. The doctoral incumbents in five types of first employing organizations (public school district, college or university, service organization, business or industry, and other) were compared on the three measures of ability and achievement. No significant differences in mean values were found on the criteria of intelligence or math-science GPA. A significant difference was found on the criterion of rank in class, ($.01 < p < .05$). The mean rank-in-class score (of 111.69) for doctoral recipients employed by service organizations was significantly lower than both the mean of 115.98 for those employed by colleges or universities, and the mean of 115.06 for those employed by public school districts.

4. The 1958 doctoral recipients in education were investigated by major area of study on three criteria of ability and achievement: intelligence, rank in class, and mathematics-science GPA. The specific major areas studied were as follows: educational psychology, secondary education, clinical psychology, elementary education, higher education, guidance, curriculum, mathematics-science, special education, physical education, administration, practical arts, social foundations, student personnel, subject areas and other. Analysis of variance demonstrated significant mean differences on only the criterion of mathematics-science GPA, ($p < .01$).

5. The 1958 doctoral recipients in education were studied by two breakdowns of higher education institutions which provided employment following graduation: (1) highest classification level and, (2) type of program. An analysis of variance showed that no significant mean differences exist on the three criteria of ability and achievement for either breakdown.

6. Through the questionnaire technique it was found that the majority, 95 per cent, of the 1958 doctorates in education are directly involved with the profession of education in 1963. Only 5 per cent are in other classifications of employment such as business, industry, government, and private practice.

7. Currently, 64 per cent of the respondents are engaged in college teaching. High school administration and college administration account for 20 and 6 per cent, respectively.

8. Eighty per cent of the respondents set forth as their ultimate professional objective some kind of college or university work. Specifically, 48 per cent of the respondents aspire to college teaching. Approximately 15 per cent look forward eventually to public or private school teaching, administration, or supervision. Only about 5 per cent aspire ultimately to careers in business, industry, government, or private practice.

9. After five years of post-doctoral employment, promotions have been received by 38 per cent of the respondents. Sixty-two per cent have yet to receive their first job or career promotion.

10. Sixty-four per cent of the respondents have made at least one geographic move since 1958. It was found that 23 per cent had made more than one position relocation.

11. A favorable attitude exists among the majority of doctrates in respect to three types of

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professional satisfaction; namely, economic, position, and advancement.

12. Concerning the allocation of faculty load, it was found that some form of administration is the most frequently practiced professional duty. This activity is followed in order by teaching, counseling, and research.

13. There has been a marked increase in annual salaries during the five-year period studied. Sixty-four per cent of the respondents in 1963 are making $10,000 or more on a calendar year basis. Ten per cent are making more than $15,000. In 1958, the corresponding percentages were 9 per cent and 1 per cent.

14. There is indication that the doctoral degree has been worth while in attaining certain status and position advancements. The majority indicated on all pertinent questions that the degree had been influential in status change and position advancement.

15. Fifty-two per cent of the respondents indicate that they are considering a change from their present position. This points toward a characteristic of high mobility for this professional group.

CONCLUSIONS

From the above results the following conclusions have been drawn:

1. Present concern over superiority of one degree or the other is not fully warranted. On the three criteria of ability and achievement, Ed.D.'s and Ph.D.'s differ significantly on only one, mathematics-science GPA. There are no significant differences in respect to the factors of measured intelligence and rank in high school class.

2. Feelings concerning the imagined superiority of the doctoral incumbents in certain types of positions within the profession of education are indeed questionable. On the three measures of ability and achievement, position holders did not differ on any of the three criteria.

3. Certain types of employing organizations do not necessarily attract those graduates with greater ability or demonstrated achievement. A significant difference in achievement arose on only the criterion of rank in class.

4. Present speculation as to the superiority of doctoral recipients in certain major subject areas is not entirely supported. Significant differences were revealed on only the mathematics-science GPA measure of achievement.

5. Certain classes and types of colleges and universities do not attract those graduates with greater ability and achievement. No significant differences were found on any of the three criteria studied.

6. There is ample evidence to support the statement that doctorates of education are staying within the profession. Other areas outside education (e.g., government, business, industry) are not attracting doctoral holders to any significant extent.

7. To be employed in a college or university is the goal of the majority of education doctorates.

8. The group is quite mobile. Frequent position relocation is a means utilized in the attainment of certain goals or objectives.

9. There is, generally speaking, satisfaction with economic, position, and advancement conditions.

10. The recipients of doctorates are devoting much time to the area of administration as contrasted with teaching, counseling, and research. The trend is toward increased time spent in the area of administration at the expense of teaching.

11. Advanced graduate education students appear to enjoy considerably higher earning power than most college officials have thought.

12. The doctorate has been very influential in respect to the enhancement of status role. It has influenced peers, colleagues, and superiors in a way perceived as favorable by the degree recipients.

RECOMMENDATIONS

The findings and conclusions of this study lead naturally to several recommendations for further research in this area.

1. A more detailed study of the highly significant ($p < .001$) difference between the Ed.D. and Ph.D. degree recipients on mathematics-science GPA is needed. The greater portion of the Ed.D.'s were reared in rural communities and villages; the Ph.D.'s were reared in larger towns or cities.[1/] Thus, perhaps this difference is related to urban educational opportunities versus more limited rural school experiences.

1/ Brown, Laurence, and Slater, J. Marlowe. Volume I — The Graduates, The Doctorate in Education, American Association of Colleges for Teacher Education, Washington, D.C.: the Association, 1960. p. 11

2. Extensive study of major areas by individual institutions should be undertaken to determine if mathematics-science achievement differences, as were revealed in this study, do actually exist. Comparisons in other subjects such as social studies and English might add a desirable dimension to the study.

3. Continued or periodic study of a follow-up nature to extend knowledge of career satisfactions and motivations beyond this five-year period is highly recommended. There is indication that this group is using the strategy of frequent job relocation in satisfying its aims and objectives.

4. A depth study should be made, by means of the interview method, and the construct motivation. Perhaps a random sample only should be involved. A more individualized method may reveal interesting results regarding upward mobility.

5. Motivations and satisfactions of doctoral degree recipients in other disciplines should be studied and compared with these results for the field of education.

6. Doctoral degree recipients need to be studied on the basis of more current ability measures; such as: the Graduate Record Examination, Concept Mastery Test, and Miller Analogies Test. Further, national studies in other disciplines should be undertaken with these same measures.

7. A detailed study is needed of the doctorates' attitudes toward increased administrative responsibilities. It seems that administrative duties may be assumed by chance rather than by deliberate choice.

In general, many interesting and potentially useful factors have been brought to focus within the framework of this current study, related as it is to the AACTE and Harmon investigations. The "class of 1958" has indeed been a willing participant in these endeavors. It would seem almost mandatory that periodic follow-up research be conducted in order to assess the long-term trends of mobility, career development, economic satisfactions, and similar variables related to a better understanding of doctorates in education. One of the major outcomes of this study, it is hoped, will be the stimulation of further related research.

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APPENDIXES

APPENDIX A

A Copy of the Letter and Questionnaire
Sent to the 1958 Doctorates in Education

INDIANA UNIVERSITY

Bureau of Educational
Studies and Testing
School of Education
Bloomington, Indiana

December 10, 1962

Dear Doctor_____:

You undoubtedly recall that you generously cooperated a few years ago in an investigation conducted by the American Association of Colleges for Teacher Education on the Doctorate in Education. This organization together with the Office of Scientific Personnel, National Academy of Sciences, is now carrying out a follow-up study of all the 1958 doctoral degree recipients in education.

Mr. John Sanderson, a doctoral candidate in educational psychology and a research associate in our Bureau, has the task of collecting certain data necessary for this follow-up project. His longitudinal study will provide us with valuable information related to the career motivations and satisfactions of this important professional group of which you are a member.

Mr. Sanderson's questionnaire is enclosed herewith. The two national organizations, Mr. Sanderson, and I would be most appreciative if you can find time in your busy schedule to give thoughtful attention to the enclosed questionnaire. An early return of this completed questionnaire will enable us to proceed with the study. Only a few minutes of your time will supply data which, in the aggregate, will make an important contribution to our knowledge of career development.

Thank you so much in advance for your attention to this request.

Sincerely yours,

Glenn Ludlow

H. Glenn Ludlow
Director, Division of
Foundations and Human
Behavior

HGL:brr
Enclosure

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SURVEY OF DOCTORAL GRADUATES--1958

Instructions: Please furnish the following information which is to be used for a study of the career motivations and satisfactions of the 1958 doctoral recipients in education.

The information requested in the following items will be treated confidentially. Please consider each question thoughtfully and state your opinion frankly, so a meaningful evaluation can be obtained. Most items can be answered with a check (x) or a brief phrase, but additional comments are most welcome.

Preliminary Data

Please indicate which one of the following statements most accurately describes your position at the time you received your doctor's degree:

___1. Full time student
___2. Graduate assistant and student
___3. Staff member of elementary or secondary school
___4. Staff member at college or university

Check as it applies to you.

Degree received	Sex
___1. Ph.D. degree	___1. Male
___2. Ed.D. degree	___2. Female

Characteristics of Your Employment

The questions in this section are asked in reference to two distinct periods of time. The first series of questions refer to the time immediately prior to your receiving the doctorate. The second group of questions is asked in reference to the present time. You may find some items difficult to recall, but please answer all questions as accurately as you can.

1. Time immediately prior to your receipt of the doctorate in education degree:
   a) Title of position _____
   b) How long did you hold this position? _____ years
   c) Name and location of institution, company, enterprise, etc. _____
   d) Earned income. Check (x) the interval which covers your earned income during the year (12 months) in which you received the doctor's degree. Please include salary, consultative work, royalties, and fees received for professional and technical services.

1 ___ Less than $2,500	5 ___ $10,000 to $14,999
2 ___ $2,500 to $4,999	6 ___ $15,000 to $20,000
3 ___ $5,000 to $7,499	7 ___ Over $20,000
4 ___ $7,500 to $9,999	

2. Present time:
   a) Title of position
   b) How long have you held this position? _____ years
   c) Name and location of institution, company, enterprise, etc. _____
   d) Earned income. Check (x) the interval which includes the income you earn in your current position for a 12-month period. Please include salary, consultative work, royalties, and fees received for professional and technical services.

1 ___ Less then $5,000	4 ___ $10,000 to $14,999
2 ___ $5,000 to $7,499	5 ___ $15,000 to $20,000
3 ___ $7,500 to $9,999	6 ___ Over $20,000

3. Position and promotion changes since 1958:
   a) How many times have you changed positions from a purely geographical standpoint since 1958? (Chicago, Illinois, to Ames, Iowa)
   None ___, 1 ___, 2 ___, 3 ___, 4 ___, More ___.
   b) How many promotions within the ranks have you received since 1958? (Assistant Professor to Associate Professor)
   None ___, 1 ___, 2 ___, 3 ___, 4 ___, More ___.
4. Economic satisfaction. Check (x) to indicate the extent of your satisfaction with your present position from the viewpoint of the total economic aspect:
   1 ___ Am fully satisfied with the economic status and outlook of present position.
   2 ___ Am only partly satisfied with the economic status and outlook of present position.
   3 ___ Am dissatisfied with the economic status and outlook of present position.
5. Position satisfaction. How well pleased are you with your present position from the viewpoint of professional satisfaction? Check (x) in the appropriate column at the left:
   1 ___ Thoroughly satisfied. No desire to change positions at this time.
   2 ___ Satisfied, but would consider a change.
   3 ___ Somewhat dissatisfied. Would change if possible.
   4 ___ Thoroughly dissatisfied.
6. Advancement. Check (x) the extent to which you have advanced within the possibilities of your present position:
   1 ___ Have advanced as far as it is possible to go in this position.
   2 ___ Have made good progress but may advance still further.
   3 ___ Have recently taken this position and there is much opportunity for advancement.
   4 ___ Have made little or no progress or advancement in position.
7. What do you consider to be your ultimate professional objective?

a) College or University	c) Private School
1 ___ Teaching	1 ___ Teaching
2 ___ Administration	2 ___ Supervision
3 ___ Research	3 ___ Administration
b) Public School	d) Government
1 ___ Teaching	e) Business
2 ___ Supervision	f) Other
3 ___ Administration	

8. Career direction. How do you see your career role developing?
   1 ___ Moving toward more teaching
   2 ___ Moving toward more supervision and administration
   3 ___ Moving toward more research
   4 ___ Maintaining its present direction
9. Estimate the percentage of time which you have spent during the past month in each of the following categories:

Administrative work	___ per cent
Teaching and preparation	___ per cent
Research and writing or creative work	___ per cent
Counseling with students	___ per cent
Other (describe) _____	___ per cent
	100 per cent

10. Please indicate the number of professional manuscripts you have published since receiving the doctorate in 1958:

1 ___ Number of magazine articles	3 ___ Number of bulletins and pamphlets
2 ___ Number of books	4 ___ Other — Specify

11. Please indicate by checking below changes in status exist as a result of your doctoral training:

	Yes	No	Uncertain
a) Have you received a promotion in rank?	___	___	___
b) Increase in salary?	___	___	___
c) Do you have increased prestige with peers?	___	___	___
d) Do you have increased prestige with superiors?	___	___	___
e) Are you more accepted by colleagues?	___	___	___
f) Do you have an increased feeling of security in your position?	___	___	___
g) Do you have more opportunities to initiate plans?	___	___	___
h) Do your plans win acceptance by superiors and peers?	___	___	___
i) Do you have increased opportunity for position advancement?	___	___	___
j) Do you anticipate changing your position? Why? _____	___	___	___

12. Remarks: Please add here any comments or remarks you wish concerning any of the above 11 items. Please number the remark to correspond with the item involved.
    1. 2. etc.

Return to: Mr. John Sanderson
Bureau of Educational Studies and Testing
School of Education — Indiana University
Bloomington, Indiana

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APPENDIX B

A Copy of the Follow-up Letter Sent
to the Placement Bureaus

INDIANA UNIVERSITY

Bureau of Educational
Studies and Testing
School of Education
Bloomington, Indiana

March 6, 1963

Dear Sir:

You undoubtedly recall the investigation conducted by the American Association of Colleges for Teacher Education on the Doctorate in Education. This organization together with the Office of Scientific Personnel, National Academy of Sciences, is now carrying out a follow-up study of all 1958 doctoral recipients in education.

To date we are attempting to locate the 1958 doctoral recipients and have listed below several doctorates for whom we do not have current addresses. These people graduated from your school of education and your files will perhaps contain more up-to-date records of addresses.

Would you please place beside the listed names the addresses for which you have records. Only a few minutes of your time will supply us with data which, in the aggregate, will make an important contribution to our knowledge of career development.

Thank you so much in advance for your attention to this request.

Sincerely yours,

Glenn Ludlow

H. Glenn Ludlow
Director, Division of
Foundations and Human
Behavior

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